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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/021,740 | 10/22/2001 | Yet-Ming Chiang | M00925/70108 TJO | 1110 |
| 23628 | 7590 | 12/29/2004 | EXAMINER | |
| WOLF GREENFIELD & SACKS, PC FEDERAL RESERVE PLAZA 600 ATLANTIC AVENUE BOSTON, MA 02210-2211 | | | MAPLES, JOHN S | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1745 | |

DATE MAILED: 12/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/021,740

Applicant(s)

CHIANG ET AL.

Examiner

John S. Maples

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 65-73, 76-88, 90-98 and 129-162 ~~is/are~~ pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 65-73, 76-88, 90-98 and 129-162 ~~is/are~~ rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10/22/04 are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, claims 140-150 reciting an opposing electrode having a smooth, non-reticulating surface opposing a first electrode must be shown or the features canceled from the claims. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 65-73, 76-88, 90-98 and 129-162 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a bipolar device, a battery or a

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solid state energy device, does not reasonably provide enablement for an article. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

Applicant has claimed “an article” in all of the claims in the present application. The present specification does not provide support the claimed configuration of the dual electrodes being present in just any type of article. Reference is made to the Title of the present invention where a battery structure is set forth, page 1, lines 8-10 states bipolar devices and batteries, page 1, line 13 recites solid state energy devices, page 1, line 23 states rechargeable batteries as does page 1, lines 27-32. The remainder of the present specification references solid state energy devices and more specifically batteries. There is no other disclosure in the present specification for the environs of the present subject matter.

Applicant’s arguments have been considered with regard to the above rejection but are not deemed persuasive. Applicant argues that the term “article” appears only in the preamble and is therefore not an element of the claim. This may be true, however, this does not pertain to the issue at hand. Applicant’s disclosure is directed to a solid state device, not to an article. As set forth above, the entire disclosure by applicant is directed to an electrical device that produces electricity and so the claims must be directed to such.

Applicant further argues that the claims should not be limited to such bipolar devices and that such devices are only examples of devices which the invention can be used. In response to this argument, the examiner points out that the present disclosure does not provide support for any other type of device or article than the ones disclosed—a battery, solid-state device or a bipolar device. Applicant cannot draft a claim that is broader in scope than what the disclosure

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supports. In other words, applicant does not provide support in the present disclosure for any other articles for which the claimed invention would work.

Finally, it is noted that the term "article" is a very broad term encompassing an innumerable number of possible products, devices, materials, etc. that may or may not be electrical devices and for that matter have nothing to do with producing electrical output. Applicant should amend the present claims to only that subject matter that is clearly supported by the present specification and to not include material not supported as set forth in the present disclosure.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 129-139 and 151-162 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Patel et al.-US 6,342,317 (Patel) or Chen-US 5,677,080 (Chen) each taken in view of Linden. (New Rejection)

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Reference is made to Figures 2 and 4-6 of Patel along with column 2, line 46-column 3, line 38 and column 6, lines 27-34. As seen in Figure 5 of Patel, the first electrode is the anode 14 while the second electrode is cathode 12. It is noted that the lobe surface area is at least two times greater than the theoretical distance of a smooth, non-reticulated configuration of the anode 14.

With regard to Chen, see Figures 5 and 5A of this patent and column 5, lines 8-65. It is noted that both of the electrodes in Chen as seen in Figure 5 have a plurality of protrusions and intervening indentations and that the cross-section width thereof increases as you approach the base for each of the electrodes.

The only claimed feature not shown by either Patel or Chen is the electrodes being porous. Linden sets forth on page 2.19 of this handbook, basis electrochemical principles and reactions for a battery to function. As stated in Linden, electrodes are rendered porous to increase their "interfacial area per unit volume" to increase the electrode efficiency and utilization. It would have been obvious to one of ordinary skill in this art at the time the invention was made to have provided porous electrodes in either Patel or Chen as taught by Linden for the express purpose of increasing the efficiency and utilization of the respective batteries in Patel and Chen.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John S. Maples whose telephone number is 571-272-1287. The examiner can normally be reached on Monday-Thursday from 6:15-3:45.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John S. Maples
Primary Examiner
Art Unit 1745

JSM/12-27-2004